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EXAMINER	
LE, HIEU C	

ART UNIT	PAPER NUMBER
2153	9

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/408,028	HANS ET AL.	
	Examiner	Art Unit	
	Hieu c. Le	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,9-13,17-19,23-27 and 30-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,9-13,17-19,23-27 and 30-33* is/are rejected.

7)☒ Claim(s) *7-8,14-16,20-22,28-29,34-36* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Response to Amendment

1. The amendment filed 10/28/02 have been entered and made of record.

2. Applicant's amendment filed 10/28/02 have been fully considered with respect to claims 1-5, 9-13,17-19, 23-26& claims 6 and 27 but are not persuasive for the following reasons:

Applicant alleges that "the apparatus and methods recited in the claims overcome the prior art....[,]" (p. 13, line 21-26).The Applicant is respectfully reminded that claim 1 is an independent claim and the features (recited in specification, page 6, lines 11-29) upon which the applicant relies is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. *In re Van Guens*, 988 F. 2d 1181, 26 USPQ2d 1057 (Fed. Cir 1993). Applicant alleges that "the references applied by the Examiner neither disclose or suggest downloading process control instruction [,]" (p. 13, line 27-p. 14, lines 14). Firstly, Burns reads on the claims as broadly claimed. Burns discloses a process control network for programming field devices (col. 28, line 66-col.29, line 4, Fig. 1). A diagnostic test definition or procedure (process control programming instructions) is downloaded and stored in RAM 146 of controller 102 of the field device 16 (col. 21, lines 40-65, Figs. 6,7). The field device 16 receives the instructions from a host workstation on the process control network (col. 22, lines 11-13) (i.e. the instructions are received during the operation of the process control network). The control elements in the digital field device 16 such as the I/P transducer 104 and the actuator 108 manipulate the valve 109 when the instructions are executed

by the device controller 102 (col. 27, line 64-col. 28, line 3) (i.e. the device is enabled to perform process control). Secondly, Burns discloses that the field device 16 receives diagnostic instructions and the device control 102 executes the various instructions to causes control elements in the digital field device 16 such as the I/P transducer 104 and the actuator 108 manipulate the valve 109 and to cause sensors such as sensors 120, 124, 128,116 to perform measurements (i.e the diagnostic software effects process control performed by the field device 16 and diagnostics software is indeed a process control program instructions that instruct the control elements in the field device to perform specific test and tasks such as manipulating the the I/P transducer 104 and the actuator 108 or measurement sensors). Thirdly, there is no definition in the claims of "a processor control program instructions" that is different than what reference teaches nor the claims exclude the diagnostic and test instructions. Fourthly, there is no recitation in the rejected claims of "downloading software for which field devices must be disable from performing process control" as applicant argues.

Applicant alleges that " Schreir does not provide the missing disclosure...[,]" (p. 14, line 15-p. 15, line 2). The Applicant argument is not persuasive. The Applicant is respectfully reminded that the rejection of the claim(s) 6 and 27 is combination of two references not just Shreir, references can not be argued individually to show nonobvious (see MPEP. 2145 (d)). Firstly, Burns discloses the downloading process control program instructions to the field device that are enabled to perform process control. Secondly, Schreir does not teach away simply because Schreir discloses stopping normal data processing of device components not critical to

the download operation (col. 2, lines 39-40). Schreir maximizes the devices's use of power during downloading by allowing the software to run only basic network communications (col. 2, lines 19-22) (i.e. the device is performing process control in a reduced frequency). Thirdlly, Schreir discloses downloading process control instructions to field devices (col. 2, lines 1-11).

Claim Rejections - 35 U.S.C. § 102

3 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

4. Claims 1-5, 9-13, 17-19, 23-26, 30-33 are rejected under 35 U.S.C. 102(e) as anticipated by Burns et al. [US. Pat. No. 5,970,430].

As to claim 1, Burns discloses a method of reprogramming a field device (col. 28, line 66-col. 29, line 4) in a process control network having a plurality of devices which are communicatively linked on a bus (Fig. 1) and which use a standard communication protocol to perform process control functions, the method comprising the steps of:

downloading process control program instructions from a host device to one of the field devices using the standard communication protocol during operation of the process control network while the one of the fieldis enabled to perform process control [A diagnostic test

definition or procedure (process control programming instructions) is downloaded and stored in RAM 146 of controller 102 of the field device 16 (col. 21, lines 40-65, Figs. 6,7). The field device 16 receives the instructions from a host workstation on the process control network (col. 22, lines 11-13) (i.e. the instructions are received during the operation of the process control network). The control elements in the digital field device 16 such as the I/P transducer 104 and the actuator 108 manipulate the valve 109 when the instructions are executed by the device controller 102 (col. 27, line 64-col. 28, line 3) (i.e. the device is enabled to perform process control)],

storing the downloaded process control program instructions in the field device [a test definition or procedure is downloaded and stored in RAM 146 of the controller 102 of the field device 16 (col. 21, lines 40-65, Figs; 6,7). The field device 16 receives the instructions from a host workstation (col. 22, lines 11-13)] and

causing the field device to execute the downloaded process control program instructions to perform process control [The device controller 102 executes the various instructions already stored within the device 16 to cause control elements in the digital field device such as the I/P transducer 104 and the actuator 108 to manipulate the valve 109 (col. 27, line 64-col. 28, line 3)].

As to claim 2, Burns further discloses wherein the downloading step comprises the step of transmitting the process control program instructions from the host device to the one of the field devices using unscheduled queued communications [Field device are able to transmit data and messages over the bus 34 using one of three VCRs. A client/server VCR is used for queued

unscheduled, user initiated one to one, communications between devices (col. 15, lines 58-63) (using unscheduled queued communications)].

As to claim 3, Burns further discloses wherein the downloading step comprises the step of transmitting the process control program instructions from the host device to the one of the field devices using a plurality of unscheduled queued communications [three VCRs are defined in the field bus access sublayer of stack of each field device. A client/server VCR is used for queued unscheduled communications (col. 15, lines 58-63) (i.e. using three (plurality) of unscheduled queued communications)].

As to claim 4, Burns further discloses wherein the one of the field devices has a first memory with stored process control program instructions and a second memory, wherein said storing step comprises the step of storing the downloaded program instructions in the second memory while the one of the field devices is capable of executing the stored program instructions to perform process control [a series of diagnostic test instructions to be implemented by the field device stored in devices memory (first memory) (col. 4, line 65-col. 5, line 4, col. 6, lines 14-22), a test definition or procedure is downloaded and stored in for example RAM 146 for execution by the microprocessor 140 (col. 21, lines 62-65) (second memory to store downdloaded instructions)].

As to claim 5, Burns further discloses wherein the causing step comprises the step of copying the downloaded process control program instructions from the second memory to the first memory [field devices transmit data and messages using VCRs (col. 15, lines 58-63). A

publisher/ subscriber VCR type is used for buffered, one to many communications. Buffered communication are ones that store and send only the latest version of the data and thus new data completely overwrites previous data (col. 16, lines 19-22) (i.e. the latest version of the data received (downloaded data in the second memory)overwrite previous data (existing data in the first memory) i.e. copied to the first memory)].

As to claim 9, Burns further discloses wherein the standard communications protocol is the Fieldbus protocol (col. 7, lines 24-26).

As to claim 10, Burns further discloses wherein the standard communications protocol is the HART protocol (col. 7, lines 12-13).

As to claim 11, Burns discloses a system for reprogramming a field device in a process control network having a plurality of field devices communicatively linked over a bus, wherein each of the field devices is capable of communicating on the bus using a standard communications protocol during operation of the process control network, the system comprising:

a first device that generates downloadable process control program instructions and that transmits the downloadable process control program instructions over the bus using the standard communication protocol [specific test procedures may be generated externally to the field device 16, using an input/output device such as a workstation (first device) (col. 21, lines 40-43), the field device 16 receives instructions from an operator console or host workstation 12 in the process control network 10 (col. 22, lines 11-13). The process control network implements

diagnostics communication using standard communication protocol such as HART (col. 7, lines 1-25)] and

a second device capable of receiving the downloadable process control program instructions transmitted over the bus [field device 16 (second device) downloads the test instructions transmitted by the workstation (col. 21, lines 62-64), the second device comprising:

a processor adapted to execute a set of process control program instructions stored in the second device (Fig. 7; microprocessor 140, col. 21, line 65).

a first memory adapted to store a first set of process control program instructions that may be executed by the processor [some diagnostic instructions (fist set) are stored in PROM 148 (first memory) (col. 21, lines 65-67)]; and

a second memory adapted to store the downloadable process control program instructions transmitted over the bus [other functions (second set) are downloaded and stored in RAM 146 (second memory) (col. 21, line 62-col. 22, line 1)];

wherein the first device transmits the downloadable process control program instructions [an operator console or host workstation transmits instructions (col. 22, lines 11-13)] to the second device [field device 16] and the second device receives the downloadable process control program instructions and stores the downloadable process control the program instructions in the second memory during operation of the process control network (col. 21, lines 62-65) while the second device is enabled to perform process control [The control elements in the digital field device 16 such as the I/P transducer 104 and the actuator 108 manipulate the valve 109 when the

instructions are executed by the device controller 102 (col. 27, line 64-col. 28, line 3) (i.e. the device is enabled to perform process control)].

As to claim 12, Burns further discloses wherein the standard communication protocol includes scheduled and unscheduled communications and the first device transmits the downloadable process control program instructions to the second device using unscheduled communications [the standard communication protocol is a field bus protocol (col. 7, lines 21-25). The field devices communicate over the field bus transmission medium using a link active scheduler that schedules and controls communication (col. 13, lines 54-65) (i.e. includes scheduled communications). Field devices are able to transmit data and messages over bus 34 using VCRs defined in the Fieldbus access layer of each field device. A client/server VCR is used for unscheduled communications (col. 15, lines 58-63) (i.e the messages (program instructions) are received (downloaded) by the field device using unscheduled communications].

As to claim 13, Burns further discloses wherein the standard communication protocol includes concurrent analog and digital communications and the first device transmits the downloadable process control program instructions to the second device using digital communications [the process control network that implements process control function using a set of field bus devices and communications protocol that support both analog and digital communications (col. 7, lines 1-9). The field bus protocol is an all digital, serial, two way communication protocol (col. 7, lines 40-45) (i.e the host workstation (first device) transmits diagnostic instructions to the field device 16 (second device) using digital communications].

As to claim 17, Burns discloses a reprogrammable field device capable of being used in a process control network having a plurality of devices communicatively coupled to a bus, wherein each of the devices is capable of communicating on the bus using a standard communications protocol (col 7, lines 9-15) and wherein a host device (Fig. 1, item 12) is capable of generating input signals including downloadable process control program instructions and transmitting the input signals to the reprogrammable field device over the bus during operation of the process control network (col. 22, lines 11-13), while the reprogramable field device is enabled to perform process control [The control elements in the digital field device 16 such as the I/P transducer 104 and the actuator 108 manipulate the valve 109 when the instructions are executed by the device controller 102 (col. 27, line 64-col. 28, line 3) (i.e. the device is enabled to perform process control)].the reprogrammable field device comprising:

a processor adapted to execute a set of process control program instructions stored in the reprogrammable field device (col. 21, lines 62-65, Fig. 7, item 140);

a first memory adapted to store a first set of process control program instructions that may be executed by the processor [some diagnostic instructions (fist set) are stored in PROM 148 (first memory) (col. 21, lines 65-67)]; and

a second memory adapted to store the downloadable process control program instructions transmitted over the bus [other functions (second set) are downloaded and stored in RAM 146 (second memory) (col. 21, line 62-col. 22, line 1)];

wherein the reprogrammable field device receives the downloadable process control program instructions [an operator console or host workstation transmits instructions (col. 22, lines 11-13)] and stores the downloadable program instructions in the second memory during operation of the process control network (col. 21, lines 62-65) while the reprogramable field device is enabled to perform process control [The control elements in the digital field device 16 such as the I/P transducer 104 and the actuator 108 manipulate the valve 109 when the instructions are executed by the device controller 102 (col. 27, line 64-col. 28, line 3) (i.e. the device is enabled to perform process control)].

As to claim 18, refer to claim 12 rejection.

As to claim 19, refer to claim 13 rejection.

As to claim 23, refer to claim 1 rejection for their common feature. Burns further discloses wherein the host device divides the process control program instructions into a plurality of data packets that are downloaded to the one of the field devices over time; [a configure is located in one of the device such as host 12 (col. 8, lines 3-4). To implement and perform communication and control activities the field bus protocol uses a user layer. The user layer includes the control and configuration functions provided in the form of blocks. The user layer is capable receiving and sending messages (packets) according to the standard message format defined by the fieldbus protocol (col. 12, lines 8-19) (i.e. host device 12 that configures the field devices sends configuration program instructions as messages (packets). The data link layer controls transmission of message onto the bus 34 and produces a synchronous serial signal having a proper

preamble for transmission on bus 34 (col. 12, lines 52-63) (the messages (packets) are transmitted as a serial messages (plurality of packets that downloaded to the field device overtime)], while the one of the field devices is enabled to perform process control [A diagnostic test definition or procedure (process control programming instructions) is downloaded and stored in RAM 146 of controller 102 of the field device 16 (col. 21, lines 40-65, Figs. 6,7). The field device 16 receives the instructions from a host workstation on the process control network (col. 22, lines 11-13) (i.e. the instructions are received during the operation of the process control network). The control elements in the digital field device 16 such as the I/P transducer 104 and the actuator 108 manipulate the valve 109 when the instructions are executed by the device controller 102 (col. 27, line 64-col. 28, line 3) (i.e. the device is enabled to perform process control)];

reassembling the downloaded data packets into the process control program instructions in the field device [the field device controller 102 includes a communication interface 142 which performs serial to parallel protocol conversion and is used to add framing information to data packets according to any desired protocol definition (col. 21, lines 8-12) (i.e. the serial packets are reassembled in the field device 12)].

storing the downloaded process control program instructions in the field device [a test definition or procedure is downloaded and stored in RAM 146 of the controller 102 of the field device 16 (col. 21, lines 40-65, Figs; 6,7). The field device 16 receives the instructions from a host workstation (col. 22, lines 11-13)] and

causing the field device to execute the downloaded process control program instructions to perform process control [The device controller 102 executes the various instructions already stored within the device 16 to cause control elements in the digital field device such as the I/P transducer 104 and the actuator 108 to manipulate the valve 109 (col. 27, line 64-col. 28, line 3)].

As to claim 24, refer to claim 2 rejection.

As to claim 25, refer to claim 4 rejection.

As to claim 26, refer to claim 5 rejection.

As to claim 30, Burns further discloses wherein the plurality of devices communicate using a standard communication protocol (col. 7, lines 9-15, col. 12, lines 14-19).

As to claim 31, refer to claim 1 rejection for their common feature. Burns further discloses a first device that divides downloadable process control program instructions into a plurality of data packets and that transmits the data packets over the bus [a configure is located in one of the device such as host 12 (col. 8, lines 3-4). To implement and perform communication and control activities the field bus protocol uses a user layer. The user layer includes the control and configuration functions provided in the form of blocks. The user layer is capable receiving and sending messages (packets) according to the standard message format defined by the fieldbus protocol (col. 12, lines 8-19) (i.e. host device 12 that configures the field devices sends configuration program instructions as messages (packets)]. The data link layer controls transmission of message onto the bus 34 and produces a synchronous serial signal having a proper preamble for transmission on bus 34 (col. 12, lines 52-63) [(i.e. the messages (packets) are

transmitted as a serial messages (plurality of packets that downloaded to the field device overtime)], and

a second device capable of receiving the data packets transmitted over the bus and reassembling the data packets into the downloadable program [the field device controller 102 includes a communication interface 142 which performs serial to parallel protocol conversion and is used to add framing information to data packets according to any desired protocol definition (col. 21, lines 8-12) (i.e. the serial packets are reassembled in the field device 12)].

As to claim 32, refer to claim 12 rejection.

As to claim 33, refer to claim 13 rejection.

Claim Rejections - 35 U.S.C. § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 6 & 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burns et al. [US. Pat. No. 5,970,430], as applied to claims 4 and 25 above and further in view of Schrier et al. [US. Pat. No. 6,055,633] .

As to claim 6, Burns does not discloses wherein the causing step comprises the step of

redirecting the one of the field devices from executing the stored program instructions in the first memory to executing the downloaded process control program instructions in the second memory.

Schrier discloses a method for downloading application programs to field devices. Field devices includes a memory having an upper memory 520 (second memory) and lower memory 530 (first memory). The upper memory 520 (second memory) is used to accept new application information during downloading operations. The lower memory 530 (first memory) contains the normal or current running applications (col. 3, lines 38-48. After the new application information has been received from host device 200 by field device 500 and stored in the upper memory, the device switching to the new application and then controlling its associated process in accordance with the new information (col. 2, lines 63-67, col. 4, lines 31-40);

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Schrier's teachings to modify Burns's method by redirecting the field device to switch to execute the download process control program instructions in the second memory in order to reprogram memory of a field device while communicating online.

As to claim 27, refer to claim 6 rejection.

Allowable Subject Matter

7. Claims 7-8,14-16, 20-22,28-29, 34-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hieu Le whose telephone number is (703) 306-3101. The examiner can normally be reached on Monday to Friday from 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess, can be reached on (703) 305-4752. The fax phone number for this Group is (703) 308-5357.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Hieu Le

MOUSTAFA M. MEKY
PRIMARY EXAMINER